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ABSTRACT

Over one-hundred citations, the majority of which are current works dating from the seventies, are provided in this annotated bibliography focusing on energy. Entries include books, pamphlets, reports, magazine articles, bibliographies, newsletters, and curriculum materials, such as audiovisual aids, guides and units, and simulations which will be useful in beginning a study of the energy crisis. Multi-disciplinary materials are included. Materials particularly suitable for use at the elementary level are marked with an asterisk, although elementary teachers can find much interesting information in the other citations. The concluding section contains addresses for obtaining the materials cited. (Author/JH)

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THE ENERGY CRISIS--AIDS TO STUDY

This bibliography offers teachers a variety of books, magazine articles, and curriculum aids which will be useful in beginning a study of the energy crisis. An effort has been made to include multi-disciplinary materials.

Those materials particularly suitable for use at the elementary level have been marked with an asterisk. Elementary teachers can, however, find much interesting information in the other citations which they could adapt for their classes.

This series of AIDS was compiled for the U.S. Office of Education by the librarian of the Hatheway Environmental Education Institute, the education division of the Massachusetts Audubon Society. They represent a select, rather than comprehensive listing of materials prepared for the information and convenience of teachers. Selection of material for these lists by either Massachusetts Audubon Society or the U.S. Office of Education does not constitute official endorsement or approval of it to the exclusion of others which may be suitable.

January 1974

HATHEWAY ENVIRONMENTAL EDUCATION INSTITUTE
MASSACHUSETTS AUDUBON SOCIETY
LINCOLN, MASS. 01773

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Bibliography compiled by Margaret McDaniel, Librarian, Hatheway Environmental Education Institute, Massachusetts Audubon Society

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BOOKS, PAMPHLETS & REPORTS

Abrahamson, Dean E. ENVIRONMENTAL COST OF ELECTRIC POWER. Scientists Institute for Public Information, 1970.

This slim paperback, written in non-technical terms, is a rich source of information for both teachers and students. Social implications are stressed as well as scientific aspects. The chart, depicting the environmental cost of producing electricity by fossil fuel and by nuclear fuel, makes an excellent teaching aid.

This publication would tie in well with MAN AND THE ENVIRONMENT cited under Curriculum Materials-Simulations

Brown, Theodore L. ENERGY AND THE ENVIRONMENT. Merrill, 1971

An analysis of the impact of man's energy production and use on environment and climate. High School.

Brown, Tom OIL ON ICE: ALASKAN WILDERNESS AT THE CROSSROADS. Sierra, 1971.

Here is the environmentalist's outlook on the Alaskan pipeline. Use the filmstrip series produced by Alyeska Pipeline Service Company (see A-V section) in conjunction with this to provide material for debates. Grade 9 and up.

Buel, Ronald A. DEAD END: THE AUTOMOBILE IN MASS TRANSPORTATION. Prentice-Hall, 1972.

A comprehensive analysis of the role and impact of the automobile on the American environment -- not just its importance as transportation but rather its far-reaching effects are stressed. High School.

Chase Manhattan Bank OUTLOOK FOR ENERGY IN THE UNITED STATES TO 1985. CMB June, 1972.

The statistics, such as what parts of the U.S. economy use how much of what fuel, are presented in clear and graphically arresting fashion - an excellent reference source. High School.

Congressional Quarterly, Inc. ENERGY CRISIS IN AMERICA. C.Q., 1973.

A compilation of articles which originally appeared in CQ "Weekly Report" or Editorial Research Reports. The original date of publication appears on the first page of each chapter. An excellent source for building case studies on many aspects of the current crisis. Written for the layman so the text is not highly technical. High School.

Dunstan, M.J. and P.W. Garlan. WORLDS IN THE MAKING: PROBES FOR STUDENTS OF THE FUTURE. Prentice-Hall, 1970.

Studying the energy crisis will certainly involve "probes... of the future". Teachers of English, science and social studies can all use this book (to the delight of their students).

In addition to excerpts from authors such as Alvin Toffler, Don Fabun, Robert Theobald, Arthur C. Clarke, Lewis Mumford and many others, there are cartoons, sketches, quotation inserts, and full-color photomicrographs and photographs.

The Teacher's Manual/Future File provides ideas, suggestions and "Other resources". Grade 9 and up.

Related books: Fabun, Don. DIMENSIONS OF CHANGE Macmillan, 1971

Theobald, Robert AN ALTERNATIVE FUTURE FOR AMERICA-II Swallow Press, 1970

Ehrlich, Paul R. and A.H. Ehrlich POPULATION, RESOURCES, ENVIRONMENT: ISSUES IN HUMAN ECOLOGY 2nd ed. Freeman, 1972.

An introductory interdisciplinary text for a course on Man and his environment. Lengthy annotated bibliographies add to the book's value. Teacher's guide available. Grade 11 up.

The section on problems of food production ties in well with study of energy crisis. The following related books and articles can be used to expand this area:

Brown, Lester R. SEEDS OF CHANGE: THE GREEN REVOLUTION AND DEVELOPMENT IN THE 1970's. Praeger, 1970

Brown, L.R. & G.W. Finsterbusch MAN AND HIS ENVIRONMENT: FOOD. Harper, 1971

National Academy of Science-National Resource Council RESOURCES AND MAN Freeman, 1969. Sections 1, 4, & 5 discuss many aspects of the earth's carrying capacity for food energy.

Holdren, J.P. & P.R. Ehrlich GLOBAL ECOLOGY Harcourt, 1971.

Pimental, David et al "Food Production & Energy Crisis" Science V. 182, 2 November, 1973.

Concern, Inc. ENERGY CONSERVATION: ECO-TIPS #5, Feb. 1973

A valuable leaflet that offers economically and environmentally helpful consumer suggestions on ways to conserve energy. Offers many possibilities for classroom discussion and research. Single copy free. $7.50/100 copies.

Goodman, Paul and Percival COMMUNITAS: MEANS OF LIVELIHOOD AND WAYS OF LIFE. 2nd ed. rev. Vintage, 1960

Discussions of the energy crisis will inevitably lead to consideration of differing life styles and their environmental impact. The three community prototypes detailed in this book

would provide a dramatic way to approach such discussions. High School.

Halacy, D.S., Jr. COMING AGE OF SOLAR ENERGY rev. ed. Harper, 1973.

Recounts the history of solar energy use. Describes many new concepts and hardware for using solar energy. Illustrated with photos, drawings and charts. Readable, not too technical. Junior High up.

Related book Brinkworth, B.J. SOLAR ENERGY FOR MAN. Halstead, 1973.

Hammond, Allen L. et al ENERGY AND THE FUTURE American Association for the Advancement of Science, 1973.

"That this country cannot afford to be without more energy options is the general thesis of this book...(it) seeks to discover and to assess the research technologies and research developments that will be the basis for future energy policies".

Graphs, charts, tables, detailed glossary and lengthy bibliography in addition to a well-written text make this a most useful reference. Teacher and advanced student.

Harmin, Merrill et al. CLARIFYING VALUES THROUGH SUBJECT MATTER: APPLICATIONS FOR THE CLASSROOM Winston, 1973

The "three-level teaching" method - facts, concepts and values - detailed in this book would make study of the current energy crisis and its many ramifications much more effective than the simple accumulation of facts. Students can be shown that their choices and consequent actions are important. Teachers.

Related books: Metcalf, L.E. ed. VALUES EDUCATION
Simon, Sidney et al VALUES CLARIFICATION

Hellman, Hal ENERGY IN THE WORLD OF THE FUTURE. Evans, 1973

An excellent introduction to the current energy situation and the possibilities for the future. Includes a detailed bibliography and index. Junior High up.

*Hinkelbein, Albert ENERGY AND POWER. Watts, 1971

Historical rather than technical approach. Various sources of energy are described in short chapters, with many good photos and graphs illustrating nearly every topic and every given example. Suggests new ways of using energy and speculates on its future supply. Grade 6 and up.

Related elementary books: Adler, Irving ENERGY. Day, 1970

*elementary level

* Blackwood, Paul PUSH AND PULL: THE STORY OF ENERGY rev. ed. McGraw-Hill, 1966

* Fuchs, Eric WHAT MAKES A NUCLEAR POWER PLANT WORK Delacorte, 1972

* Harrison, G.R. FIRST BOOK OF ENERGY Watts, 1965

* Schneider, H. MORE POWER TO YOU Scott, 1953

Holdren, John & Philip Herrera ENERGY: A CRISIS IN POWER (Sierra Club Battlebook Series) Sierra Club, 1971

Thorough, readable, and well-documented treatment of the energy situation: technology, economics, environmental impact, and a history of utility-environmentalist confrontations. High School.

Related book: Guitar PROPERTY POWER contains, among others, a detailed case history of confrontations between private citizens and the Connecticut Light & Power Company.

Lappe, Frances M. DIET FOR A SMALL PLANET Ballantine, 1972

Ms. Lappe suggests that its high time we Americans get off the top of the food chain by learning and practicing the concept of protein complementarity.

Here is an opportunity for the Home Economics department to join science and the social studies teachers in their analysis of the energetics of food production, and to carry this study a step further by serving food based on Lappe's book. See Russell MAN, NATURE AND HISTORY cited on page 6.

Related book: Ewald, E.B. MENUS FOR A SMALL PLANET. Ballantine, 1973.

Lewis, Richard S. THE NUCLEAR POWER REBELLION: CITIZENS VS. THE INDUSTRIAL ESTABLISHMENT. Viking, 1972

Newsworthy encounters between citizens and the U.S. Atomic Energy Commission are recounted here for the general reader. Technical details are kept to a minimum. Some bias is apparent but nonetheless it is well-documented. Junior High up.

Related book: Gofman, J.W. POISONED POWER, THE CASE AGAINST NUCLEAR POWER PLANTS Rodale, 1971

McHale, John THE ECOLOGICAL CONTEXT rev. ed. Braziller, 1970

This book deals with the "life support" systems of the physical environment--energy and materials. A particularly rich source of charts, graphs and diagrams as well as lengthy reading lists. Teachers.

*elementary level

BOOKS, PAMPHLETS & REPORTS (cont.)

*Millard, Reed HOW WILL WE MEET THE ENERGY CRISIS? POWER FOR TOMORROW'S WORLD. Messner, 1971

Defines the problems we face requiring more power. Suggests a number of alternate solutions. Good illustrations. Grade 6 up.

*Millard, Reed NATURAL RESOURCES: WILL WE HAVE ENOUGH FOR TOMORROW'S WORLD? Messner, 1972.

Each chapter begins with a question pertinent to a specific natural resource such as natural gas, oil, nuclear fuel, etc., and the possibility of a phase out of these resources. Includes a section of "Suggested Further Reading", and a list of "Sources of Information about Natural Resources". Grades 6-9.

Moran, Joseph M. et al AN INTRODUCTION TO ENVIRONMENTAL SCIENCES Little, Brown 1973

An introductory text for college students that could be used by high school students. The sections on "Human Carrying Capacity: Food Energy" and "Human Carrying Capacity: Industrial Energy" are particularly applicable here. Instructor's manual available. High School.

National Science Foundation SOLAR ENERGY AS A NATIONAL RESOURCE NSF/NASA, 1973.

In this report are compiled the recommendations by over forty scientists on the potential of solar energy and related research development programs. Grades 11 and up.

Order from: Solar Energy Panel
Dept. of Mechanical Engineering
University of Maryland
College Park, MD. 20742

Odum, Howard T. ENVIRONMENT, POWER AND SOCIETY Wiley, 1971.

An interesting but technical treatment of the energetics of ecosystems and man's involvement in energy flows. See especially the material on the energy subsidy of agriculture. Teacher and advanced student.

Related book: Phillipson, J. ECOLOGICAL ENERGETICS. Arnold, 1966

Papanek, Victor DESIGN FOR THE REAL WORLD: HUMAN ECOLOGY AND SOCIAL CHANGE. Pantheon, 1971

"Design can and must become a way in which young people can participate in changing society." The Industrial Arts teacher

* elementary level

will find a challenge in Papanek's philosophy, and material for thoughtful classroom discussions that involve the social ramifications of industrial design and the positive contributions students can make. High School.

Related article: ENVIRONMENT April '73 "Low Energy Living"

RESOURCE RECOVERY: THE STATE OF TECHNOLOGY Midwest Research Institute (for Council on Environmental Quality) Feb., 1973 U.S. Government Printing Office.

This study, although already dated, provides a useful comparison of several energy recovery processes. Helpful for a start on research reports. High School

Related pamphlets: ENERGY RECOVERY FROM WASTE U.S.Government Printing Office, 1972

SOLID WASTE AS FUEL FOR POWER PLANTS E.P.A., 1973 (distributed by National Technical Information Service, Springfield, Va., as PB-220 316.)

HIDDEN WASTE: POTENTIALS FOR ENERGY CONSERVATION Conservation Foundation, 1973

Ridgeway, James THE LAST PLAY: THE STRUGGLE TO MONOPOLIZE THE WORLD'S ENERGY RESOURCES Dutton, 1973

THE LAST PLAY contains a considerable amount of information on particular aspects of the problem of managing energy resources. A great deal of specific information is provided on the energy companies, sources and uses of different energy resources, and on the energy needs of different countries. An excellent research reference. High School.

Rocks, Lawrence & R.P. Runyan ENERGY CRISIS Crown, 1972

The subtitle summarizes this book's contents - "the imminent crisis of our oil, gas, coal and atomic energy resources and solutions to resolve it." Useful as a jumping-off point for research.

Note the use of the word "imminent" and the time table that is already outdated although the book appeared in 1972. Students will note other points of rapid change as they research ideas herein. High School.

Russell, W.M.S. MAN, NATURE AND HISTORY: CONTROLLING THE ENVIRONMENT (Nature & Science Library) Natural History Press, 1969

The study of the energetics of farming (energy used in food production) offers a new approach to the study of history and the current energy crisis. This book will give teacher and student an interesting start. Well-illustrated. Junior high up.

Related books: Lauwerys, J.A. MAN'S IMPACT ON NATURE: TECHNOLOGY AND LIVING THINGS (Nature & Science Library)
Forbes, R.J. CONQUEST OF NATURE TECHNOLOGY AND ITS CONSEQUENCES Praeger, 1968. Grades 11 and up.
Related film: THE GREAT SEARCH (see AV section)
Related articles - see Magazine section

Schurr, Sam H. ed. ENERGY, ECONOMIC GROWTH AND THE ENVIRONMENT. John Hopkins Press, 1972.

Papers presented at a forum conducted by Resources for the Future, Inc. April, 1971. A fundamental reference for teachers. Interesting comparisons can be made with Schurr's book of 1960 cited next. Resources for the Future publishes many timely reports. Write for a current list available from John Hopkins Press. Teachers.

Related book: Landsberg, H. H. ENERGY IN THE UNITED STATES: SOURCES USES AND POLICY ISSUES Random, 1968.

Schurr, Sam H. et al ENERGY IN THE AMERICAN ECONOMY 1850-1975 John Hopkins Press, 1960.

The subtitle "An Economic Study of its history and prospects" summarizes the purpose of this book. The voluminous tables, charts, statistics and appendices would be useful for research projects. Part III which addresses future energy supply, as predicted in 1960, provides an opportunity to analyze those factors which were not anticipated or have changed so greatly and thereby have brought about the current crisis. Teachers and advanced students.

Scientific American ENERGY AND POWER Freeman, 1972.

A compilation in book form of the complete textual and illustrative content of the September 1971 issue of Scientific American covering the chief issues of the energy crisis. Important background reading for teachers in all fields. Advanced high school students.

Individual articles from this book and others pertinent to the same topic are available from W.H.Freeman & Co. Write for list of Scientific American Offprints.

Related book: Technology Review ENERGY TO THE YEAR 2000. MIT Press, 1972.

Sterland, E.G. ENERGY INTO POWER: THE STORY OF MAN AND MACHINES. Natural History Press, 1967

History, studied as the reflection of man's search for ways to exploit more and different sources of energy, can be made more vital for today's students. How man has achieved success, and how he continues the search is set forth in this book in a colorful format replete with charts, tables and colored illustrations. Junior High up.

Teachers should take advantage of the opportunities offered here and in similar books to emphasize the successes of man rather than dwelling always on his failures.

The filmstrip series ENERGY AND THE EARTH (cited under AV materials would be useful with this book.

*Swatek, Paul USER'S GUIDE TO THE PROTECTION OF THE ENVIRONMENT Ballantine, 1970

The section "Consuming Energy in the Home" will give teachers abundant material to build a unit for either elementary or secondary level. This ties in very well with the citations under Curriculum Materials. Junior high up.

BIBLIOGRAPHIES

ENERGY/ENVIRONMENT/ECONOMY Enviro/Info April, 1973

An annotated bibliography of selected U.S. government publications concerning energy policies.

ENERGY/ENVIRONMENT/ECONOMY: SUPPLEMENT September, 1973

Updates and augments the April issue. These two sources offer teacher or student opportunity to build case studies on growth and change in governmental policy.

THE ENERGY INDEX, 1973

This index catalogs key information since 1970 on energy issues: resources, conversion technology, consumption, and environmental impact. More than 2,000 abstracts and many tables and charts. A great reference tool but expensive - $50. Seek it out in university and industrial firms' libraries.

Publisher: Environment Information Center, Inc.
Library Reference Dept.,
124 East 39th Street
New York, N.Y. 10016

THE HUMAN ENVIRONMENT VOLUME I Environment Series #201 Woodrow Wilson International Center for Scholars, 1972.

A selective annotated bibliography of reports and documents on international environmental problems. Useful for in-depth research projects on the international aspects of the energy crisis.

*elementary level.

MAGAZINE ARTICLES

AMERICAN HOME Vol. 76 No. 3 March 1973 "STOP THE WORLD OR USE IT BETTER"

Contains questionnaire dealing with the amount of energy used in the home and its cost. A good project for the secondary school student.

AUDUBON V. 72, No. 4 July, 1971."LIVE BETTER ELECTRICALLY"

This brief article, emphasizing the aesthetic destruction that would occur by the proposed power plant siting in a New England valley, could bring up for discussion another facet of the energy problem, namely aesthetics and the choices to be made.

Publisher: National Audubon Society
950 Third Avenue
New York, N.Y. 10022
$10/yr - 6 issues. Single copies $2.

CATALYST FOR ENVIRONMENTAL QUALITY V. 11, No. 3

Entire issue devoted to pros and cons of the use of nuclear power. Not too technical for high school students.

Publisher: Catalyst Magazine
274 Madison Avenue
New York, N.Y. 10016
$5/yr - Quarterly. Students $3/yr.

C.F.LETTER June, 1972

An overview of the nation's energy problems. Discusses the political, social and economic dimensions of the topic with prospects for action. Could serve as basic outline for secondary classwork.

Publisher: Conservation Foundation
1717 Massachusetts Ave., N.W.
Washington, D. C. 20036
$6/yr. Single copy 60¢

*CONSERVATION LEADER December, 1972. "TRY AN ENERGY DIARY"

The method outlined in this article is adaptable to both elementary and secondary levels. It will provide the basis for a worthwhile project that will involve students and their parents as they figure out the amount of energy they are using, the ways it is used and its cost. They can then discuss the choices that must be made if they wish to economize.

Publisher: Massachusetts Audubon Society
Lincoln, Mass., 01773

*elementary level

MAGAZINE ARTICLES (Cont.)

*CONSERVATION NEWS Vol. 38, No. 23. December 1, 1973
"Geothermal - the Devil's Own Breath"
This is a short article on the development of a geothermal power plant in Big Sulphur Canyon, California, and the future for other such plants. Conservation News is a free, bi-weekly publication which highlights national news. It is a useful reference for students. Grades 6 and up.
Publisher: National Wildlife Foundation
1412 16th Street
Washington, D.C. 20036

ENVIRONMENT Vol. 15, nos. 1-10 Jan.-Dec., 1973
Every issue of the 1973 ENVIRONMENT has one or more articles pertaining to the energy crisis. The entire November issue is devoted to it.
These articles are very readable and non-technical, a most useful source for high school students and for teachers of any grade level.

ENVIRONMENT Vol. 14, No. 9. Nov. 1972
"GETTING IT TOGETHER" Communes use less energy, have less impact on the environment than families living separately. Other cultures show other possibilities - i.e. the Japanese communal bath, the Polish travel coupons for hitchhikers, and more.
An intriguing article that would fuel many lively discussions. High School.
Publisher: Scientists' Institute for Public Information
438 N. Skinker Blvd.
St. Louis, Missouri 63130
$10.00/year 10 issues

ENVIRONMENT Vol. 14, No. 2 October 1972
"FARMING WITH PETROLEUM"
Modern farming uses energy-hungry machines instead of human labor. The result, which is economically efficient, has far-reaching effects in society and the environment.
Reprints of this article and many others from ENVIRONMENT can be obtained from: Hackett Publishing Company
4047 North Pennsylvania Street
Indianapolis, Ind. 46205

* elementary level

ENVIRONMENT Vol. 14, no. 8 October, 1972

"A MATTER OF DESIGN"

How to construct and operate public buildings without wasting a lot of steel, concrete, and energy. This ties in with the Dollars & Cents of Residential Energy Utilization cited in the curriculum materials section. There is an opportunity here for student analysis of local building codes and on-site observation of home and commercial building. See also article from the Oct. 1973 Smithsonian cited below.

FORTUNE June, 1969

"POWER FROM THE EARTH'S OWN HEAT"

The author paints an optimistic picture of the future of the generation of electricity from geothermal power. Use in conjunction with article on same topic cited under Science to gain understanding of international aspects. High School.

Publisher: Time, Inc.
541 N. Fairbanks Court
Chicago, Ill. 60611
$12.00/year Monthly

THE FUTURIST Vol. VI, No. 4 August, 1972

"ENERGY SOURCES FOR THE FUTURE"

The author first considers the historical consumption of energy and then proceeds with the possibilities for the future. There are several most interesting graphs which would be useful in both social studies and science classes. This article would also be useful in conjunction with the WORLD ENVIRONMENT FORECASTING MODULE cited under curriculum materials.

THE FUTURIST Vol. VII, #5 October, 1973.

"THE PROMISE OF FUSION POWER". The author is a most enthusiastic proponent of fusion power. Teachers and students will find this article a readable introduction to the processes of thermonuclear fusion.

The August 1972 Vol. VI, #4 issue has a lengthy section devoted to energy. The FUTURIST is a magazine that will appeal to most high school students and will offer teachers many new ideas. High School and adults.

Publisher: World Future Society
P.O. Box 30369, Bethesda Branch
Washington, D. C. 20014

MOTHER EARTH NEWS No. 17, September, 1972

"FREE POWER FROM THE WIND". Detailed descriptions of American and European windmill styles and their uses. This magazine is one of the best sources on alternate life styles,

MAGAZINE ARTICLES (cont.)

including new (and ancient) energy sources.
"A MODEST METHANE EXPERIMENT" No. 20, March, 1973
"SOLAR HEATER" No. 21, May 1973
"THE HYDRAULIC RAM PUMP" No. 22, July 1973
Publisher: Mother Earth News, Inc.
P.O. Box 38
Madison, Ohio 44057
$6/yr. 6 issues Single copy $1.25

THE NATION Vol. 217 No. 14 October 29, 1973
"SOONER THAN YOU THINK: CLEAN POWER FROM THE SUN".
Techniques of power generation and different ways in which solar energy can be utilized. Good supplementary information.
Publisher: James Storrow, Jr.
Nation Associates, Inc.
333 6th Avenue
New York, N.Y.
$15/yr

*NATIONAL WILDLIFE Vol. 11, No. 5 Aug-Sept. 1973
"THE FASCINATING STORY OF FOSSIL FUEL" Isaac Asimov.
Understanding the 65-million year process that made these fuels give the current energy crisis a new dimension. The colorful pictorial charts would make excellent teaching aids. Grade six up.
Publisher: National Wildlife Federation
1412 16th Street, N.W.
Washington, D. C. 20036
$6.50/yr. Bi-monthly

NATURAL HISTORY V.LXXXII, No. 8 October, 1973
"MAN'S AGE-OLD STRUGGLE FOR POWER"
"If history is any guide, there's light at the end of the energy crisis". The author traces energy shortages from Paleolithic times to the present and concludes that when one form of energy becomes exhausted, wits are sharpened to find another. See also Sterland ENERGY INTO POWER cited under Books .... and the film THE GREAT SEARCH. Junior High up
Publisher: American Museum of Natural History
Central Park West at 79th
New York, N.Y.
$8/yr. 10 issues. Single copy $1.00

*elementary level

MAGAZINE ARTICLES (Cont.)

NEW YORK TIMES MAGAZINE Jan. 28, 1973
"NEW SHOWDOWN IN THE WEST" Calvin Kentfield
Relates feelings of people living in the counties where strip-mining is a real possibility. Very interesting psychology.

OIL, THE CREATED CRISIS Philadelphia Inquirer, July 1973.
This reprint of a three-part series which started July 22, 1973 would provide provocative material for the consumers arguments in a debate on the fuel shortage. High school.
Send self-addressed stamped 9X12 envelope with request to:

The Philadelphia Inquirer
Philadelphia Newspapers, Inc.
400 N. Broad Street
Philadelphia, Pa. 19101

POPULATION BULLETIN V. XXVI, No. 2 June, 1970
"POPULATION AND RESOURCES THE COMING COLLISION"
This issue deals with the global consumption of minerals, foods and fuels, and also points up the fallacies inherent in the American dream that Asians, Africans and Latin Americans have only to apply the U.S. economic philosophy to bring up their standards of living.
These bulletins, issued six times a year, provide teachers with excellent source materials. High school students will find them useful. Slides of the tables and graphs are available.

Publisher: Population Reference Bureau
1755 Mass Ave., N.W.
Washington, D.C. 20036

Teacher membership $5.00/year. Includes Population Bulletin, Population Profiles, Interchange and Special reports. Single copies of Bulletin 50¢.

SCIENCE, the weekly magazine published by the AAAS, should be checked regularly by teachers and high school students. Most of the following citations are taken from the sections "Research News", "News and Comments", letters, and editorials.
The following groups of citations could be assembled for class readings or research references.

GROUP I·

Energy Options: Challenges for the Future 8 Sept. 72 v. 177

Geothermal Energy: An Emerging Major Resource 15 Sept. 72 v. 177

Solar Energy: The Largest Resource 22 Sept. 72 v. 177
Fission: The Pros & Cons of Nuclear Power 13 Oct. 72 v. 178
Energy Conservation 27 Oct. 72 v. 178
Electricity Demand Growth & the Energy Crisis 17 Nov. 72 v. 178
Conservation of Energy: The Potential for More Efficient Use 8 Dec. 1972 v. 178
Energy Needs: Projected Demands and How to Reduce Them 15 Dec. 1972 v. 178
Power Gas and Combined Cycles: Clean Power from Fossil Fuels 5 Jan. 1973 v. 179
Energy Conservation 13 April 73 v. 180
Energy Efficienty (letter) 13 July 1973 v. 181
Energy Conservation through Effective Utilization 13 July 73 v. 181

Group II:

Vermont: Forced to Figure in Big Power Picture 1 Oct. 71 v. 174
For a U.S. Energy Agency 16 June 72. v. 176
White House Energy Policy: Who Has the Power? 23 March 73 v. 179
Britain & Energy Policy: Problems of Interdependence 29 June 1973 v. 180
Energy Policy (letter) 29 June 73 v. 180
Taxation and Energy Conservation (letter) 13 July 73 v. 181
Alaska Pipeline: Congress Dear to Environmentalists 27 July 73 v. 181

Group III

The Fast Breeder Reactor: Signs of a Critical Reaction 28 Apr. 1973 v. 176
Nuclear Safety: At the AEC the Way of the Dissenter is Hard 5 May 72 v. 176
Human Costs of Nuclear Power 11 Aug. 72 v. 177
Nuclear Safety (I): The Root of Dissent 1 Sept.72 v. 177
Nuclear Safety (II): The Years of Delay 8 Sept.72 v. 177
Nuclear Safety (III): Critics Charge Conflicts of Interests 15 Sept. 72 v. 177
Nuclear Safety (IV): Barriers to Communication 22 Sept. 72 v. 177

PUBLISHER: AAAS
1515 Mass Avenue, N.W.
Washington, D.C. 20005
Weekly, $30/year Single copy $1.00 (back issues $2.00)

MAGAZINE ARTICLES (Cont.)

Science and Public Affairs Vol. 29 No. 4 April 73
"Energy Conservation and Waste Recycling: Taking advantage of Urban Congestion".
Discusses ways of exploiting urban areas in terms of energy conservation - waste recycling. Fairly easy reading; very practical, useful for secondary school teachers.

Science and Public Affairs Vol. 29 No. 8 October, 1973
"New Directions for Solar Energy"
Uses of solar energy and feasibility components of solar climate control system. Good material for secondary school students, easy reading for teacher.
Publisher: Educational Foundation/Nuclear Science
24 E. 58th Street
Chicago, Illinois 6065[illegible]
$8.50/year Monthly

Science & Public Affairs Vol. 29 No. 7 Sept. 1973
"Realities of the Energy Crisis"
A discussion of the advantages and drawbacks of different energy sources. Also touches on social aspects, future needs & problems. Secondary teachers will find this valuable.
Publisher: (same as above)

Sierra Club Bulletin Vol. 58, No. 5 May, 1973
"The Realities and Unrealities of Energy Economics" Mike Morrison
A high school economics class could have some lively discussions as they sought to understand Morrison's "Laws of Energy Economics."
Publisher: Sierra Club
1050 Mills Tower
San Francisco, Ca. 94104
$5.00/year Single copies $.50

Smithsonian Vol. 4, No. 8 Nov. 1973
"Interest in wind is picking up as fuels dwindle"
History and dynamics of windmills. Presents projects and future possibilities. Very interesting reading and readily understandable.
Publisher: Smithsonian Association
900 Jefferson Drive
Washington, D.C. 20560
$10.00/year Single issues $1.00

Smithsonian Vol. 4, No. 7 Oct. 1973

"There are ways to Help Buildings Conserve Energy"

The author, in a most interesting and non-technical style, cites many ways in which architects, builders, or planners could put their heads together and practice means to halt the escalating power drain.

A class research project could be built around the study of architecture in other cultures from the point of view of energy conservation.

Publisher: Smithsonian Association
900 Jefferson Drive
Washington, D.C. 20560

$10.00/year $1.00 single copy

Technology Review Vol. 75 July/Aug. 1973

"What's New in Transit in Europe"

Surveys and analyzes innovations in European mass transits and highlights the different attitude of the European toward his cities. Useful material here for discussion of value systems and technology. Teachers should become familiar with this magazine. The majority of the articles are very readable, not highly technical. See Energy Technology to the Year 2000 cited under books.

Publisher: Mass. Institute of Technology (MIT)
Room E19-430
Cambridge, Mass. 02139

$9.00/year 9 issues. $1.25/single copy

Yankee Vol. 37, No. 12 Dec. 1973

"An Ethical & Moral Science"

Students investigating alternate life styles will find this article on the New Alchemy Institute most interesting. Dr. John Todd and his associates are using both solar energy and windmills to supply the heat and electricity needed for their self-contained, ecologically-sound community.

Publisher: Yankee
Dublin, N.H. 03444

$5.00/year Monthly. Single copy 50¢

DARKNESS FOR OUR CITIES Center for Cassette Studies, Inc. Audio-tape.

Dr. Robert Rienow makes an impassioned plea for wasteful Americans to change their ways

This is a more dramatic presentation than those on the other tapes cited in this section, useful as an introduction to the topic. Students would find many possibilities for research. There are opportunities for discussion of semantics as well. Junior High and up.

ENERGY: A DIALOGUE American Association for the Advancement of Science 1973 Audiotapes

A collection of twelve tapes which present an overview of our energy problems with emphasis on the views of knowledgeable people from differert sectors of our society. Non-technical, good listening.

Series Titles:
1. The Energy Crisis: Myths & Realities
2. What lights the lights?
3. Temporary Energy: Oil and Gas
4. New Face for an Old Fuel: The outlook for Coal
5. The Promise of Nuclear Power
6. Energy Alternatives: Solar & Geothermal
7. The future for Fusion
8. Take the Bus: Energy Conservation
9. The Economics of Energy
10. Energy & Environment
11. Choices for the Future: Energy Management
12. Reprise

High School and Adult

ENERGY AND THE EARTH Lyceum Productions, 1973. 2 filmstrips & cassettes or phonodiscs. Color.

Earth: The Early Years introduces the student to concepts of the formation of the solar system and the geological and biological development of the earth. The era of wind, water, and steam are developed. Part I ends with the beginning of the age of oil, electricity, and the internal combustion engine, circa 1900.

Earth: The years of Decision opens with the technical explosion of the 20th century. The extravagant use of non-renewable resources is reviewed and the generation of electrical energy is explored from hydropower and fossil fuel stations to magnetohydrodynamics and fusion.

The teacher's guide lists key topics for discussion prior to viewing, and follow-up activities. Junior High up.

FUSION ENERGY: POWER OF THE FUTURE. Cassette #572. Center for the Study of Democratic Institutions Audiotape

Richard F. Post of the Lawrence Radiation Laboratory. In a non-technical talk Mr. Post, one of the foremost authorities on fusion energy, describes the substantial progress that has already been made in harnessing fusion power.

He maintains that the timetable for fusion power production is "now up to you, collectively." The transition time of scientific proof to commercial production is a matter of will just as the matter of getting to the moon was a matter of will. Fusion power could be available within a decade. Ample opportunity for values level discussion.

Many excellent tapes are produced by this Center. Write for their catalog. Advanced students and teachers.

THE GREAT SEARCH. Walt Disney Education Materials Co. 16mm color, 13 min. $170.00; Rental $12.00 Teacher's guide.

This brief film combines excellent animation and clear, concise narration to provide the viewer with a brief overview of how throughout history different forms of energy have been utilized to do man's work. The focal point of the film is that the search for new and more powerful forms of energy will continue because man has the ability to use his head to get ahead in an ever-changing environment. Grades 7 and up.

MAN, ALASKA AND ENERGY Alyeska Pipeline Service Co., 1972. 5 color filmstrips with phonodiscs.

This series explores the aspects of man's relationship to the Alaskan environment as a whole, and specifically spots the trans-Alaska pipeline.

Here is an opportunity to bring in the question of semantics in relation to the discussion of environmental problems--could these same filmstrips be used to present an opposing viewpoint? See COPING WITH THE MASS MEDIA cited under curriculum guides and OIL ON ICE by Brown under books.

The teacher's guide suggests other likely topics for discussion. Junior high and up.

MAN BUILDS-MAN DESTROYS Great Plains National Television Library. Color videotape and video cassetts.

"Power to the People", one of the thirteen programs in an outstanding series, reviews various energy sources and the human demand and insatiable appetite that have developed for such energy.

CURRICULUM MATERIALS - Audio Visual Aids (Cont.)

These programs were produced by the New York State Education Department and United Nations Television. The international emphasis is an important aspect of this program and one that should lead to many possibilities for class research. Junior high and up.

CURRICULUM MATERIALS
GUIDES & UNITS

COPING WITH THE MASS MEDIA McDougall, Littell and Co. 1971

This is one section of the Language of Man, an outstanding language arts series. Teachers will find many ideas in here and in another section How Words Change Our Lives that will enliven their approach to the energy crisis. See also the article entitled "Language of Deceit" in Media & Methods May 1973.

THE DOLLARS & CENTS OF RESIDENTIAL ENERGY UTILIZATION: A DEVELOPMENTAL GUIDE Cooperative Science Education Center, 1972

This material places special emphasis on the effective utilization of energy for space heating. As the standard of living increases, so does the demand for heated space.

"The questions and problems in this booklet were designed to guide the user in developing a basic concept of energy, e.g. the relationship between various forms of energy, conversion units, the growth of energy use, and the value of thermal insulation in saving both energy and money."

An opportunity for the high school math classes to explore the energy shortage.

*LEARNING Vol. 2 No. 4 Dec. 1973

"Starting Points-Energy: Plugging into the fuel crisis"

Although these "Starting Points" are aimed at teachers of K-8 the opening paragraphs of this one point the way for teachers at any grade level to approach the energy crisis. The depth of study and degree of difficulty will of course vary but the fundamental objectives will remain the same.

The article contains a series of activities to help students understand what energy is, not in abstract terms but rather as it flows through the everyday world. The two pull-out "Learning Scenes" are designed to help children understand how this energy is controlled, how it is used, and what negative as well as positive consequences may result.

* elementary level

CURRICULUM MATERIALS GUIDES AND UNITS (Cont.)

* POWER PLANTS IN TOLEDO. Toledo Public Schools.

This section of the Toledo Environmental Education Program, containing two environmental encounters, one for secondary level and one for elementary, provides teachers with an excellent format on which to build encounters geared to their own communities.

Guidelines for the Teacher, another section of the Toledo EE program, includes sections on handling value questions, handling controversial issues, and effecting social change. All of these can help a teacher to make the study of the energy crisis a worthwhile project.

THE WORLD ENVIRONMENT FORECASTING MODULE Project CLEAN 1973.

Concerns for today's environmental needs and decisions will be inadequate unless we can visualize the future and project our plans to the situation as it may exist in the coming decades. Students can be helped to develop this skill through activities such as are described in this detailed unit.

CURRICULUM MATERIALS
SIMULATIONS

Educational Research Council of America

LIFE SCIENCE INVESTIGATIONS: MAN AND THE ENVIRONMENT Houghton-Mifflin 1971.

Investigation 21 "What is the Price of Progress" in this junior high school text contains two role-playing games designed to help students understand the origin of thermal pollution of our water resources. The first game simulates the history of a city. In the second the students play the roles of contemporary groups involved in a hearing on the proposed construction of an atomic power plant.

This investigation could be carried well beyond the scientific aspects to become an interdisciplinary project involving social implications, semantics, history, values discussions, local community surveys... (see also the citation for Power Plants in Toledo) Junior High and up.

THE ENERGY-ENVIRONMENT GAME Edison Electric Institute, 1973.

This is an educational simulation that deals with society's demand for increasing amounts of electrical energy and the complex problems which result from this demand. It is designed to provide junior and senior high school students with problem-solving experiences which lead to decision making.

* elementary level

The game materials consist of a filmstrip, record, teacher's guide, player's guide, 32 role profiles, site selection materials, and background information.
Junior High up.

INTERCHANGE V. 2, No. 2. Population Reference Bureau.
The activity sketch: Transportation Policy: Riding with Reason details a simulation which includes discussion of the energy requirements of several modes of transportation, certainly an area of great interest to many students.
Interchange is a newsletter for teachers on population education. See citation POPULATION BULLETIN.

* TEACHING ABOUT SPACESHIP EARTH Intercom #71. Center for War/Peace Studies. 1972 $1.50
This is a well-thought out, stimulating and imaginative role-playing experience for the middle grades. It was developed in conjunction with UNICEF with a consequent emphasis on the need for children to learn about the larger world from a global vantage.
The teacher's guide contains detailed instructions for science activities to lay the groundwork for a few key scientific concepts. These activities do not call for complex or expensive materials, nor does the teacher need special training. Grades 4-6.

* elementary level

ADDRESSES

Alyeska Pipeline Service Co.
P.O. Box 576
Bellevue, Wash. 98009

American Association for the Advancement of Science
1515 Massachusetts Ave., N.W.
Washington, D.C. 20005

Ballantine Books, Inc.
101 5th Avenue
New York, N.Y. 10003

Braziller, George Inc.
1 Park Avenue
New York, N.Y. 10016

Center for Cassette Studies, Inc.
8110 Webb Avenue
North Hollywood, Calif. 91605

Center for the Study of Democratic Institutions
P.O. Box 4446
Santa Barbara, Calif. 93103

Chase Manhattan Bank
1 Chase Manhattan Plaza
New York, N.Y. 10015

Concern, Inc.
2233 Wisconsin Ave., N.W.
Washington, D. C. 20007

Congressional Quarterly Inc.
1735 K. St., N.W.
Washington, D.C. 20006

Cooperative Science Education Center, Inc.
156 Adams Lane
Oak Ridge, Tenn. 37830

Crown Publications, Inc.
50-10 34th St.,
Long Island City, N.Y. 11101

Doubleday and Co., Inc.
501 Franklin Avenue
Garden City, N.Y. 11530

Edison Electric Institute
Dr. Richard B. Scheetz
90 Park Avenue
New York, N.Y. 10016

Enviro/Info
P.O. Box 115
Green Bay, Wisconsin 54305

Environment Information Center, Inc.
124 East 39th Street
New York, N.Y. 10016

Evans
see Lippincott

Freeman, W. H. & Co.
660 Market St.,
San Francisco, Calif. 94104

Great Plains National Instructional T. V. Library
P.O. Box 80669
Lincoln, Neb. 68501

Harper & Row Publishers, Inc.
49 E. 33 St.,
New York, N.Y. 10016

The Johns Hopkins Press
Baltimore, Md. 21218

Learning
1255 Portland Place
Boulder, Colo. 80302

Lippincott, J. B., Co.
E. Washington Square
Philadelphia, Pa. 19105

Little, Brown & Co.
34 Beacon St.,
Boston, Mass. 02106

Lyceum Productions, Inc.
P.O. Box 1226
Laguna Beach, Calif. 92652

McDougall, Littell & Co.
P.O. Box 1667
Evanston, Illinois 60204

Messner
see Simon & Schuster

Natural History Press
see Doubleday & Co., Inc.

Pantheon Books
201 East 50th St.,
New York, N.Y. 10022

ADDRESSES

Project CLEAN
7235 Antioch
Shawnee Mission, Kansas 66204

Prentice-Hall Inc.
Englewood Cliffs, N.J. 07632

Random House Inc.
201 East 50th St.,
New York, N.Y. 10022

Scientists' Institute for Public Information
30 East 68th St.,
New York, N.Y. 10021

Sierra Club Books
Scribner Bldg.
597 Fifth Avenue
New York, N.Y. 10017

Simon & Schuster, Inc.
630 Fifth Avenue
New York, N.Y. 10020

Toledo Public Schools
Environmental Education Program
Manhattan & Elm
Toledo, Ohio 43608

Vintage
see Random House, Inc.

Viking Press, Inc.
625 Madison Avenue
New York, N.Y. 10022

Walt Disney Educational Materials Co.
800 Sonora Avenue
Glendale, Calif. 91201

Watts, Franklin Inc.
575 Lexington Avenue
New York, N.Y. 10022

Wiley, John & Sons, Inc.
605 Third Avenue
New York, N.Y. 10016

Winston Press
25 Groveland Terrace
Minneapolis, Minn. 55403

Woodrow Wilson International Center for Scholars
Smithsonian Institution Bldg.
1000 Jefferson Drive, S.W.
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